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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/693,760

10/24/2003

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BLD920030015US2

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50441 7590 04/29/2008
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EXAMINER

LEE, TOMMY D

ART UNIT

PAPER NUMBER

2625

MAIL DATE

DELIVERY MODE

04/29/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 10/693,760 | Applicant(s) LI ET AL. | |
| | Examiner Thomas D. Lee | Art Unit 2625 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 12-26 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27-34 is/are allowed.
- 6) ☒ Claim(s) 1-10 and 35-41 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/24/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Invention I (claims 1-11 and 27-41, as renumbered) in the reply filed on February 11, 2008 is acknowledged.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 35-41 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

These claims recite instructions for causing a machine to perform operations, the instruction contained in a machine-accessible medium. The instructions are functional descriptive material that impart functionality when employed as a computer component (i.e., executable code; becomes one with the computer, causes the computer to perform certain acts or functions). Functional descriptive material must be embodied on a *computer readable* medium to impart its functionality (MPEP § 2106.01).

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 37-39 and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

These claims are *method* claims depending from claims 36 and 40, which are directed to a *machine-accessible medium*. Appropriate correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-10 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,510,896 (Wafler) in view of U.S. Patent 5,852,678 (Shiau et al., hereinafter Shiau).

Regarding claims 1-5, 9 and 35, Wafler discloses a method for enhancing image processing for a color reprographic system, the method comprising: scanning a scan target having known characteristics with a scanner to generate scanner data (test original placed on document platen and scanned (column 6, lines 37-47)); detecting a color distortion in the scanner data with respect to the known characteristics and generating scanner color parameters (desired parameters (such as color image density, linearity, background and image registration, which are types of color distortion) compared with actual digital representation, and differences compensated for and calibrated (column 6, line 61 - column 7, line 7)); printing a printer target from a digital target (after scanning subsystem calibration, hard copy of known test image printed (column 7, lines 8-16)); scanning the printed target with the scanner to generate printer data (hard copy scanned using previously calibrated scanning subsystem (column 7, lines 16-23)); and correcting the scanned printer target based upon parameters generated for the scanner (scanned digital representation compared with previously stored actual digital representation, printer subsystem's input/output transfer function calibrated, based on comparison (column 7, lines 24-35)). The method further comprises detecting a skew in the scanner data with respect to the known characteristics and generating skew parameters when the skew exceeds a skew threshold, wherein detecting the skew comprises detecting a rotation of the scanned target with respect to the scanner data (calibration parameters include skew (column 8, lines 25-28)); detecting a color fringe with respect to the known characteristics and generating scanner fringe parameters when the color fringe exceeds a color fringe

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threshold, wherein detecting the color fringe comprises evaluating red, green, and blue pixels in an outline area of a gray patch (correction for errors in image misregistration of one or more colors relative to other colors (column 8, lines 1-10)). Detecting the color distortion comprises generating a curve for a hue based upon the color distortion (input/output transfer function obtained for scanner subsystem (column 6, lines 64-66) and printer subsystem (column 7, lines 26-30)). A machine-accessible medium containing instructions, which when executed by a machine, cause said machine to perform the above steps (main memory has plural hard disks for storing machine operating system software, machine operating data and scanned image data currently being processed (column 5, lines 47-52)).

Wafler does not expressly disclose detecting a gray balance distortion in the scanner data with respect to the known characteristics and generating scanner gray balance parameters when the gray balance distortion exceeds a balance threshold (claims 1 and 35), wherein detecting the gray balance distortion comprises determining a difference between the color values for red, green, and blue pixels generated by the scanner and the known characteristics associated with a gray patch (claim 8); or detecting distortion associated with gray balance of the printer and generating parameters when a gray patch in the scanner printer target has a colorcast (column 6). However, Wafler states that *any* desired parameters for scanning and printing can be compared and calibrated (column 8, lines 25-29 and 45-48). Calibration for gray balance is a well known color adjustment in scanners and printers, and Wafler's statement would have provided motivation for one of ordinary skill in the art to

incorporate any number of well known calibration methods, including gray balance adjustment, in Wafler's apparatus.

Wafler does not disclose detecting a halftone frequency associated with the scanned printer target to select a descreen filter (claims 1 and 35). Shiau discloses a descreening filter that is selected on the basis of halftone frequency information (column 5, lines 50-61). While the halftone frequency information is not necessarily associated with a scanned printer target, one of ordinary skill in the art would have recognized that any halftone image that is scanned is susceptible to the formation of moiré patterns. Shiau states that descreening is necessary in order to prevent moiré patterns which can result when an image already containing screen effects is screened again (column 5, lines 53-58). Therefore, it would have been obvious for one of ordinary skill in the art to modify the teaching of Wafler by providing a descreen filter which is selected on the basis of detection of a halftone frequency, as taught by Shiau.

Regarding claims 7 and 10, Wafler discloses scanning a known test original as the scanner target (column 6, lines 37-42) and printing a hard copy of a known test image as the printer target (column 7, lines 8-12). While the known test original and known test image are not identified, one of ordinary skill in the art would have recognized the fact that any known test targets could be used for calibrating the scanner and printer. The use of a standard IT8 target and a step wedge for calibration purposes are well known in the art, and thus their use in Wafler would have been an obvious modification to one of ordinary skill in the art, as a matter of design choice.

Allowable Subject Matter

10. Claims 27-34 are allowed.
11. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
12. Claims 36-41 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 101 and 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
13. The following is a statement of reasons for the indication of allowable subject matter: No prior art has been found to disclose or suggest "a printer detector to detect a halftone frequency with a printer based upon a pattern of pixels in the color image data and differences between the color image data and the target data with respect to a printer color distortion of color values of pixels in the color image data, and to generate printer correction parameters to describe the printer color distortion and the halftone frequency when the halftone frequency associated with the printer is below a threshold frequency, when the color image data is scanned from a printed target from the printer," as recited in base claim 27; or the method of claim 1, "wherein detecting the halftone frequency further comprises selecting a descreen filter when the halftone frequency of the printer is coarse, as recited in dependent claim 11, or the machine-accessible medium of claim 35, further comprising "selecting an image processing technique from a set of image processing techniques based upon detected characteristics of the printer and the scanner; configuring the image processing technique based upon the detected

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characteristics," and "correcting the page data based upon the configured image processing technique," as recited in dependent claim 36, or "determining whether the halftone frequency associated with the scanned printer target interacts with a halftone frequency associated with the page data," and "filtering the color image data with a halftone frequency filter associated with a halftone frequency of the page data when the halftone associated with the page data is determined to interact with the halftone frequency associated with the scanned printer target," as recited in dependent claim 40.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Lee whose telephone number is (571) 272-7436. The examiner can normally be reached on Monday-Friday, 7:30-5:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on (571) 272-7402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas D Lee/
Primary Examiner, Art Unit 2625